

ABSTRACT OF THE DISCLOSURE

An optical displacement sensor comprises a surface emitting laser light source, a scale and a photosensor. The surface emitting laser light source emits a light beam having a predetermined shape. The scale is displaceable in such a manner as to cross the light beam emitted from the surface emitting laser light source and has a diffraction grating of a predetermined period formed thereon for forming a diffraction interference pattern from the light beam. The photosensor receives a predetermined portion of the diffraction interference pattern. The photosensor includes light intensity detecting means comprised of a plurality of light receiving areas arranged apart from one another in a pitch direction of the diffraction interference pattern on a light receiving surface at intervals of $n p_1(z_1+z_2)/z_1$ where z_1 is a distance between a light-beam emitting surface of the surface emitting laser light source and a surface on which the diffraction grating is formed, z_2 is a distance between the surface on which the diffraction grating is formed and the light receiving surface of the photosensor, p_1 is the pitch of the diffraction grating on the scale, and n is a natural number.